

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-024523**Date Inspected:** 21-Jun-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Pat Swain and Steve Jensen**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** SAS Tower**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base South Shaft Skin Plate 'B' to Diaphragm Plate, elevation 9 meters;

At Tower Base Skin Plate 'B' (45mm) to Diaphragm Plate (45mm) weld joint #052, this QA Inspector randomly observed ABF personnel Hua Qiang Hwang continuing to perform production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 45mm thick skin plate and 45mm thick diaphragm plate. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to and after welding. This QA Inspector observed QC Inspector Pat Swain using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. The welder was noted using Shielded Metal Arc Welding (SMAW) during 1G welding of the root. After the completion of the root pass, ABF QC Pat Swain was noted performing Magnetic Particle Testing (MT) on the welded root pass. The welder has resumed welding and noted using the dual shield Flux Cored Arc Welding (FCAW-G). This QA Inspector performed a verification of the welding parameters and observed 295 amperes and 25.1 volts with a travel speed of 570 mm per minute with equivalent heat input of 0.78 Kj per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. At the end of the shift, cover pass welding was partially completed (1010mm) along the length of the joint and that completed the whole length (2550mm) of the weld joint. ABF

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personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 225°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower Base West Shaft Skin Plate 'B' to Diaphragm Plate, elevation 9 meters;

At Tower Base Skin Plate 'B' (45mm) to Diaphragm Plate (45mm) weld joint #051, this QA Inspector randomly observed ABF personnel Wai Kitlai continuing to perform production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 45mm thick skin plate and 45mm thick diaphragm plate. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to and after welding. This QA Inspector observed QC Inspector Pat Swain using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. The welder was noted using Shielded Metal Arc Welding (SMAW) during 1G welding of the root. After the completion of the root pass, ABF QC Pat Swain was noted performing Magnetic Particle Testing (MT) on the welded root pass. The welder has resumed welding and noted using the dual shield Flux Cored Arc Welding (FCAW-G). This QA Inspector performed a verification of the welding parameters and observed 290 amperes and 24.2 volts with a travel speed of 480 mm per minute with equivalent heat input of 0.88 Kj per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. At the end of the shift, cover pass welding was partially completed (740mm) along the length of the joint and that completed the whole length (2550mm) of the weld joint. ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 225°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower North Shaft Splice #3 @Elevation 114 meters:

At Northeast (B-C) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Salvador Sandoval continuing to perform production welding on the bottom half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process with 1.8mm diameter E71T-8 wire electrode implementing Caltrans approved (WPS) ABF-WPS-D15-F2200-3. The welder was noted 3F (vertical) fillet welding the splice plate to interior corner closure plate of the tower shaft. This QA Inspector observed ABF personnel using a propylene gas torch to preheat the plates to be welded prior to welding. This QA Inspector observed QC Inspector Steve Jensen using a Fluke infra red temperature gauge to verify the preheat temperature of more than 300°F. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. At the end of the shift, fillet welding was completed and ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 300°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower North Shaft Splice #3 @Elevation 114 meters:

At North (C-D) corner, upper splice plate; This QA Inspector randomly observed ABF welding personnel Xiao Jian Wan continuing to perform production welding on the bottom half of the upper splice plate using the self

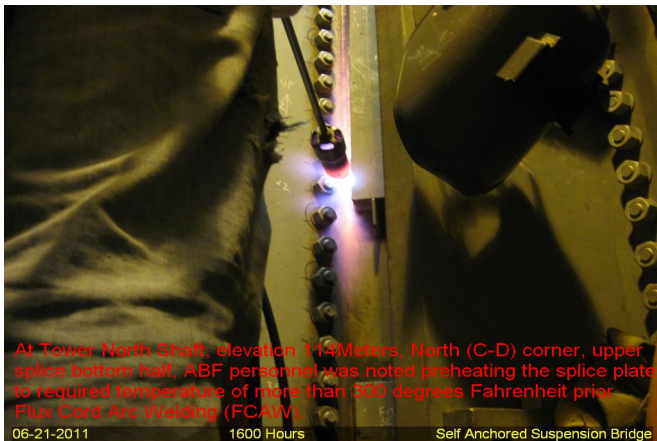
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shielded Flux Cored Arc Welding (FCAW) process with 1.8mm diameter E71T-8 wire electrode implementing Caltrans approved (WPS) ABF-WPS-D15-F2200-3. The welder was noted 3F (vertical) fillet welding the splice plate to interior corner closure plate of the tower shaft. This QA Inspector observed ABF personnel using a propylene gas torch to preheat the plates to be welded prior to welding. This QA Inspector observed QC Inspector Steve Jensen using a Fluke infra red temperature gauge to verify the preheat temperature of more than 300°F. This QA Inspector performed a verification of the welding parameters and observed 250 amperes and 21.5 volts with a travel speed of 85 mm per minute with equivalent heat input of 3.79 KJ per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. At the end of the shift, fillet welding was still continuing and should remain tomorrow. ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 300°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower Base Elevation 13Meters Shear Plate Electro Slag Welding (ESW);

ABF personnel were noted continuing to dismantle the Hilti MI-90 strut columns and its brackets that were used to hold the water cooled weld shoes at previously welded T-joint and moved them to the next new location weld joint E-042 at location 'K' which is scheduled to be welded June 22, 2011. ABF personnel were noted erecting the Hilti MI-90 strut columns in position in preparation for the next ESW. Some personnel were noted tack welding the brackets that support the Hilti MI-90 strut column to the strong back supports while some personnel were noted tack welding temporary attachment brackets for the ladders to be used in performing the ESW.



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Summary of Conversations:

No significant conversation occurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo, Joselito
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Quality Assurance Inspector

Reviewed By:	Levell, Bill
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QA Reviewer
